Ethanol Mandate Debate;
point/counterpoint

The need for statewide mandate
• There is no established rational that justifies the need, much less a mandate, for ethanol-blended gasoline in low pollution areas of rural Wisconsin. Ask proponents why they need to “force” Wisconsin motorists to buy ethanol-blended gas, and they will respond with everything but the straight answer; if people aren’t force to buy it, there’s not a large enough market to make a profit from it.

The federal government already mandates ethanol-blended reformulated gasoline for the more populated counties of Kenosha, Milwaukee, Ozaukee, Racine, Washington, and Waukesha. And the new energy enacted by congress last year requires refiners to double use of ethanol annually by 2012, and makes Wisconsin’s need for a mandate pointless.

Ethanol reduces the need to import 128,000 barrels of oil per day
• The myth is that the United States imports most its oil from “overseas”. The fact is that the U.S. gets its oil from a variety of domestic and international sources. According to the U.S. Department of Energy data (October 2005), less that 17 percent of U.S. oil imports came from countries in the Persian Gulf. In contrast, the U.S. imports more than one-third of it oil from Canada and Mexico.

According to Cornell University ecology professor David Pimentel in an analysis published in 2001 in the peer-reviewed Encyclopedia of Physical Sciences and Technology, Pimentel argued that when you add up all the energy costs—the fuel for farm tractors, the natural gas used to distill corn sugars into alcohol, and so on—making a gallon of ethanol takes 70 percent more energy than the finished product contains. And because that production energy comes mostly from fossil fuels, gasohol isn’t just wasting money but hastening the depletion of nonrenewable resources.

The petroleum industry receives more in federal subsidies
• In 2006, ethanol-blended fuels will receive a 5.1 cent per gallon exemption from the federal excise tax. This is a subsidy of 51 cents per gallon of ethanol produced, not including the 20 cents per gallon that Wisconsin pays ethanol makers. In total, these subsidies contribute to the estimated $3 billion in the total federal and state support for the ethanol program. These subsidies are to offset the high cost of producing ethanol.

Ethanol proponents argue that the petroleum industry also receives federal subsidies. But in comparison, the oil industry receives tax breaks to encourage exploring for and producing petroleum, crude oil, and natural gas within the United States. The federal government also spends $ billions to ensure the U.S. has enough oil and reserves for the strategic defense of our nation and interests abroad. You could not run the U.S. Armed Services on ethanol for a day.

The oil refineries do not receive a subsidy for the production of gasoline.

Ethanol is good for farmers
• From a January 2005 article in the Milwaukee Journal Sentinel: (Nicholas Hollis, president of the Washington, D.C.-based not-for-profit Agribusiness Council, said “many farmers oppose the bill and are being bullied by big business – specifically Decatur, Ill.-based agriculture giant Archer Daniels Midland Co. – into backing it. ADM produces roughly 30% of the ethanol in the country and dominates the trucking and ethanol transportation industry. Hollis called the idea the “greatest snake oil of the 21st century.”

ADM executives declined to comment. Hollis and other critics contend that ethanol is far from the precious panacea its supporters profess. “They're using this demagogue approach, using fear and slogans and lies about cleaner air and cleaner emissions and helping the farmer,” Hollis said. “Every one of these claims turned out to be hollow.”

Ethanol lowers gas mileage, damages cars, deflates the price of corn, pollutes the air, uses enormous amounts of
water and requires more energy to produce than it saves, they say. “It’s a net loser,” he said. “If we converted every ear of corn in this country, we’d be more dependent on the Middle East than we are now.”)

ETHANOL is good for the environment. Ethanol made from corn is a clean burning fuel and reduces greenhouse gas emission 12-19 percent compared with conventional gas.

- The Wisconsin’s Department of Natural Resources (DNR) estimates that the proposed mandate will increase nitrogen oxide (NOX) emissions, which contribute to ozone smog, by 6.9-13 tons per day. This is double the reduction in NOX emissions that Wisconsin achieves through vehicle inspection and maintenance programs in six southeastern counties. Ozone levels in those counties currently exceed federal standards. The mandate, DNR cautions, will worsen their ozone problem and “degrade air quality throughout the state.”

The volatility increases that ethanol causes in summertime can overwhelm any benefit it provides in reducing CO tailpipe emissions, sulfur dilution or aromatics dilution. That is why the ethanol industry only talks about tailpipe emissions benefit from ethanol in RFG. The ethanol industry often quotes the National Research Council study of reformulated gasoline as finding that CO reduction credit should be included for ethanol in EPA’s complex model for RFG because CO tailpipe emissions contribute to ozone formation. But they fail to acknowledge what we believe to be a more important finding. The NRC report stated, ‘...the increase in the evaporative emissions from the ethanol-containing fuels was significantly larger than the slight benefit obtained from the lowering of the CO exhaust emissions using the ethanol-containing fuel.’

The bottom line: the reduction in CO tailpipe emissions obtained by using ethanol in summertime gasoline are not worth the increase in evaporation and the increases in NOX emissions from a smog contribution point of view. Incidentally, the increases in evaporation do not just contribute to ozone formation. Since the gasoline also contains toxic aromatics, such as benzene, these will evaporate more readily along with the ethanol. While
ethanol may dilute the amount of benzene in a gallon of gasoline, the amount of benzene that ends up in the ambient air due to increase evaporation from the fuel may be greater than if the ethanol were not added at all."

The EPA is well aware of the pollution problems caused by ethanol, especially the fact that it increases serious hydrocarbon evaporative emissions during warm weather. In Milwaukee, the EPA addressed this problem by requiring that ethanol be blended with a special low volatility gas base in the summer to offset ethanol's volatility. But this special base was expensive and contributed to shortages, so the EPA recently waived this requirement.

ETHANOL means economic development. Ethanol plans in Wisconsin provide new jobs and an expanded tax base.

• The DNR thinks AB 15 will lead to more pollution. The DNR promised to impose costly pollution regulations on businesses if the Legislature adopts an E10 mandate. New statewide pollution regulations will increase the cost of doing business in Wisconsin, which makes us less competitive with our neighboring states. When we are less competitive, we lose jobs.

DNR is developing an ozone pollution control strategy involving drastic cuts in NOx emission on a statewide basis. The compliance cost is likely to exceed $1 billion. Adding to this substantial burden with more ethanol pollution will make a bad situation worse. Wisconsin businesses would suffer a crippling economic blow to simply offset the E10 emissions, without making net progress toward ozone attainment.

ETHANOL means lower gas prices. On average fuel blends using 10 percent ethanol are 10 cents cheaper than fuels that don’t use ethanol.

• Without the .71 cents in state and federal subsidies, ethanol is by the most conservative estimates, twice as expensive to produce as gasoline — and has less energy (BTUs). A survey of gasoline prices throughout Wisconsin on 12/26/05 showed that the lowest gas price of $2.242 for non-ethanol unleaded was in Green Bay, compared to $2.253 for 10% ethanol blended gas in Milwaukee.
Ethanol plants help the farm economy

- Farmer-owned ethanol plants are investment schemes to rake in profits from subsidies. The 2005 energy bill passed by Congress, allows non-farmer investors to make out with tax credits. If a farmer-owned cooperative builds an ethanol refinery, the investors get a share of the refinery's annual $1.5 million tax credit allowed by the federal government. If the credit equals an investor's tax bill, the investor owes no federal taxes. If it exceeds the tax bill, the investor is entitled to carry it over. The U.S. currently has several hundred ethanol plants, mostly farmer owned. Some are structured as limited-liability corporations to let non-farmer investors in on the feast.”

FACT SHEET: Biofuels: Ethanol & Biodiesel

95% of ethanol is produced from corn.\(^1\) 11% of the U.S. corn crop went into ethanol production in 2004.\(^2\) In 2004, the U.S. consumed approximately 140 billion gallons of gasoline and produced a record 3.45 billion gallons of ethanol.\(^3\) In August 2005, the national Energy Bill became law, mandating production of 8 billion gallons per year by 2012.\(^4\) This is spawning a massive growth in the number of noisy,\(^5\) polluting ethanol biorefineries proposed for communities throughout the U.S., but will do little, if anything, to cut down U.S. oil consumption. In 1997, the General Accounting Office concluded, "ethanol's potential for substituting for petroleum is so small that it is unlikely to significantly affect overall energy security."\(^6\)

As of September 2005, there are 83 ethanol plants in operation, 3 being expanded and 20 more under construction. Many more are proposed.\(^7\)

Industrial Agriculture

Of all crops grown in the U.S., corn demands the most massive fixes of herbicides, insecticides, and natural gas-based fertilizers, while creating the most soil erosion.\(^8\) 52% of U.S. corn is genetically engineered.\(^9\) Ethanol is increasingly derived from biotech corn varieties.\(^10\)

Biotech corn comes in two main varieties: that which the corn manufactures Bt toxin to kill the European corn borer, and that which makes the corn herbicide tolerant so that
more herbicides can be used without killing the crops. This leads to increased use of Aventis' Liberty or Monsanto's Roundup herbicide. Recent studies have shown Roundup to be more dangerous than previously thought - being highly lethal to amphibians. Both Bt and herbicide-resistant corn can lead to the development of resistance in bugs and weeds, a problem with virtually all chemical methods of pest control. Bt is a soil bacteria used as a pesticide of last resort by organic farmers, so Bt resistant bugs are a major problem for organic farmers. Both methods also risk genetic pollution, spreading the biotech attributes to nearby crops, wild relatives or weeds.

Meeting the lifetime fuel requirements of just one year's worth of U.S. population growth with straight ethanol (assuming each baby lived 70 years), would cost 52,000 tons of insecticides, 735,000 tons of herbicides, 93 million tons of fertilizer, and the loss of 2 inches of soil from the 12.3 billion acres on which the corn was grown. The U.S. only has 2.263 billion acres of land and soil depletion is already a critical issue. Soil is being lost from corn plantations about 12 times faster than it is being rebuilt.

Wetlands - the most productive fish and wildlife habitat there is - consume nitrogen and filter out pesticides and sediments, but wetlands are being drained in order to produce surplus corn. The Corn Belt has lost about 70 percent of its wetlands. In some areas, corn has to be irrigated by pumps that suck water from the ground faster than it percolates back in. Moreover, the pumps are powered by natural gas, the frenzied production of which is creating horrendous problems for fish and wildlife.

Pollution-Belching BioRefineries
Ethanol production is very energy intensive, requiring mini-power plants just to produce the steam they need. Some proposed ethanol plants have sought to locate next to existing trash incinerators, waste coal power plants or other industries capable of sharing steam with their new industrial neighbors. This may save energy, but it results in the concentrating of polluting industries in already poisoned communities. Most ethanol plants have their own
power production facilities, often burning coal. Some of the proposed ethanol plants are seeking to install gasification-style incinerators capable of burning anything from very toxic waste streams like trash, tires, plastics, construction and demolition wood waste to lesser contaminated wastes like animal, crop and food production wastes and forestry residues. All of these fuels have their own set of contaminants that would be released into the community through air pollution and the production of toxic ash. Since the facility can make more money serving as a waste disposal site by taking the more dangerous waste streams, this economic incentive will encourage these plants to become de facto incinerators for trash and tires.

Other parts of the biorefinery production process release pollution as well. Prodded by hundreds of complaints at the Gopher State Ethanol plant in St. Paul, where residents complained that the plant smelled like "rubbing alcohol mixed with burning corn," the Minnesota Pollution Control Agency began testing emissions from the plant. They found high levels of carbon monoxide, methanol, toluene and other Volatile Organic Compounds, including formaldehyde and acetaldehyde, both of which are known to cause cancer in animals.

The EPA then tested other ethanol plants and concluded that "most, if not all" ethanol plants are emitting air pollutants at many times the rate allowed by their permits. Between 2002 and 2005, EPA settled cases with ADM and Cargill, the largest ethanol producers, over their 9 ethanol plants, forcing them to pay out over $485 million for these and other facilities, mostly to invest in afterburners to burn off the exhaust gases that cause most of the odors. Settlements with 12 Minnesota ethanol plants in resulted in similar requirements to cut back on emissions of nitrogen oxides, carbon monoxide, volatile organic compounds, particulates, and other hazardous pollutants.  

Even after installing new equipment, neighborhood residents continue to complain of odors and ill health effects, since emissions still continue through leaking pipes and through vents when the pollution control equipment isn’t working.
**Water Pollution**
With each gallon of ethanol you get 12 gallons of sewage-like effluent produced by the fermentation/distillation process. Syrup, batches of bad ethanol and sewage are dumped into streams, threatening fish and plants with chloride, copper and other wastes which deprive waters of oxygen when they decompose. A state inspector in Iowa reported that a creek next to the ethanol plant in Sioux Center was milky and smelled like sewage.

**Ethanol vs. MTBE**
For years, ethanol was promoted as the only alternative to MTBE, a oxygenate used in gasoline to meet federal requirements for controlling ground-level ozone. These requirements were kept in place despite overwhelming scientific evidence that modern blends of gasoline without ethanol or MTBE burn cleaner than the reformulated gasoline that was required in ozone non-attainment areas. A National Academy of Sciences report concluded that the “commonly available ethanol and MTBE blends do little to reduce smog.” They also found that, compared with MTBE blends, ethanol blends result in more pollutants evaporating from vehicle gas tanks. The Energy Bill finally scrapped the oxygenate requirement, but mandated a doubling of national ethanol production and use.

**The Fuel**
Ethanol evaporates faster than gasoline. So while gasoline reformulated with ethanol may release less carbon monoxide, it releases more volatile organic compounds, hydrocarbons, and nitrogen oxides. You have more vapor emissions when you're refueling and when your car is sitting in a parking lot on a hot summer day. And ethanol can degrade systems in cars, so you'll get more leaks.

Ethanol costs three and a half times as much as gasoline to produce and contains only 60% as much energy per gallon as gasoline. So, while a gallon of ethanol-blended gas may cost the same as regular gasoline at the pump, it won't take you as far.
Ethanol must be blended with gasoline. But ethanol absorbs water. Gasoline doesn’t. Therefore, ethanol cannot be shipped by regular petroleum pipelines. Instead, it must be shipped separately and mixed on-site. Shipping by truck, rail car, or barge are far more expensive than pipelines.\(^{25}\) They also carry larger risks of accidents during shipping.

**Fires, Spills and Explosions**

Ethanol Storage Tank Blaze, Port Kembla, Australia

Numerous fires, explosions and spills have occurred at ethanol plants and in shipping.\(^{26}\) In October 2003, a tank holding 40,000 gallons of corn mash exploded at a Benson, MN ethanol plant, killing one worker and causing a nearby 2,000 gallon ethanol tanker truck to burst into flames.\(^{27}\) In January 2004, an explosion caused a fierce fire at an Australian ethanol storage tank that took 14 fire crews over 20 hours to extinguish. Tail lights melted on cars parked 200 feet away.\(^{28}\) In February 2004, a tanker carrying 3.5 million gallons of ethanol exploded and sank in Portsmouth, VA. Only six of the 27-member crew survived.\(^{29}\) In May 2004, firefighters spent 16 hours battling a fire at an ethanol plant in Caro, MI.\(^{30}\) In September 2005, a tanker truck spilled at least 2,000 gallons of ethanol onto the ground and into sewers in Brentwood, OH, displacing 300 residents in the subsequent evacuation and loosening up the tar on the road, required that it be repaved.\(^{31}\)

**Biodiesel**

90% of biodiesel is produced from soy. Only 10% is from recycled cooking oil.\(^{32}\) Industrial production of soy is almost as bad as a corn, requiring herbicides, natural-gas based fertilizers, soil and water depletion. 87% of soy is currently genetically-engineered, primarily for resistance to Monsanto's Roundup herbicide.\(^{33}\) leading to heavier reliance on this herbicide and greater environmental contamination and damage to wildlife.

**Net Energy: More Harm than Good?**

Ethanol production using corn grain requires 29% more fossil energy than the ethanol fuel produces. Using switchgrass requires 50% more; wood biomass: 57% more. Biodiesel production using soybeans requires 27% more fossil energy than the biodiesel fuel produces.
production from sunflower: 118\% more.\textsuperscript{34} Inefficient solar cells produce about 100 times more electricity than corn ethanol.\textsuperscript{35}

Billions in Subsidies
Many billions of dollars go to subsidizing the corn industry and ethanol production. This money could go much further if invested in the transition to conservation, efficiency, wind, solar and clean production of hydrogen (from water with wind and solar power) for transportation.

Increasing the average mileage of passenger cars and SUVs by 3-5 miles per gallon would dwarf the effects of all possible biofuel production from all sources of biomass available in the U.S. Inflating passenger car tires properly today will have more impact on the energy independence of U.S. than the 2012 ethanol production requirements.\textsuperscript{36}

Footnotes

1. "Soy Glossary or Whatisit?" The Soy Daily. http://thesoydailyclub.com/Glossary.asp About 5 percent of U.S. ethanol is made from sugar- and starch-containing materials other than corn. These include wheat, barley, and sorghum grains; sugarcane; cheese whey; and wastes from paper mills, potato processing plants, breweries, and beverage manufacturers—or some combination of these materials.


15. Ibid.


23. Ibid.


